ZAJESE
ZARIA JOURNAL OF EMPIRICAL STUDIES IN EDUCATION

FACTORS INFLUENCING SECONDARY SCHOOL STUDENTS' MOTIVATION IN LEARNING OF MATHEMATICS IN ADAVI, KOGI STATE

ATITI, Samuel Ehidiame & SHEHU, Atta Hauwa
Department of Mathematics
Federal College of Education, Okene
08077026241
pastoratiti@gmail.com

Abstract
This study investigated factors influencing secondary school students' motivation in learning of mathematics in Adavi Local Government Area, Kogi State. Four research questions guided the study. The study adopted the Survey design. The population comprise all students of public schools in Adavi Local Government Area in Kogi State (1,256). The simple random sampling was used to select five from the 16 public secondary schools and a sample of 297 senior secondary school students in the area. The instrument used for collecting data was a four-point rating scale questionnaire titled Factors Influencing Secondary School Students' Motivation in Learning of Mathematics (FISMMQ). The questionnaire was validated by two experts in measurement and evaluation and its reliability was determined by area using the spilt-half method. A Cronbach coefficient value of 0.71 was determined. Data generated were analysed using mean and standard deviation. The students claimed among others that large class size with a mean of 3.06, a motivated teacher with a mean of 3.69 and parenting style with a mean of 3.34 can affect students 'motivation to learn mathematics. They also submitted that students' attitude of always skipping classes with a mean of 3.96 was the strongest indicator of poorly motivated students. The study recommended among others that the relevant government agencies should ensure the provision of good and adequate school facilities in our public schools to serve as motivation for students' mathematics learning.

Keywords*:* Influence, Students, Motivation, Teaching, Learning, Mathematics.

Introduction
Mathematics has continued to play a significant role in education by the development of both individuals and nations. It is one subject that is globally recognized as important because of its relevance to, technology and many disciplines that are important to modern life. Oliweh (2020) opined that mathematics is basic to all scientific and technological development and it is of universal acceptance to all in the field of education. It is the backbone of all scientific investigations and all activities of human development. Emphasizing this, Nyaumwe and Mtetwa (2013) stated that mathematics education is a bedrock and an indispensable tool for scientific and economic advancement of a person and a nation at large. This implies that for a developing nation like Nigeria to join the developed nations of the world, it must ensure that its mathematics education is qualitative and functional. The fact remains that the symbolic language of mathematics is the hidden algorithm that drives the technological wheel of the modern world. Be it commerce or industry, the language of mathematics is used to model its principles and practice. Again, the functionality of a quality mathematics education prepares one for everyday life. This was why Lambkin (as cited in Kamau, Kiprono and Langat, 2020) opined that

mathematics demand on student increases as they progress through school, take up their adult life at home and in work places. This is true because today, our world is awash with numbers as the modern man now lives in a world of digits.

Despite the importance of mathematics, students' performance in both the external and internal examinations over the years in Mathematics has been worrisome to stakeholders and educators alike. Oliweh, (2020) believes that educators, trainers, and researchers have long been interested in exploring variables contributing effectively to the quality of performance of learners. Of all the personal and psychological variables that have attracted researchers in this area of educational achievement, motivation seems to be gaining more popularity and leading other variables (Muhammad & Ibrahim, 2014). Hornby (as cited in Abimbola & Abdullahi, 2019) defined motivation as a reason for doing something or that which makes somebody want to do something. Also, Butler (2016) defined motivation as those energizing/arousing mechanisms with relatively direct access to the final common motor pathways, which have the potential to facilitate and direct some motor circuits while inhibiting others. A person who feels no impetus or inspiration to act is thus characterized as unmotivated whereas, someone who is energized or activated toward an end is considered motivated. This denotes that motivation can be something that keeps us moving and the desire or willingness to do something. It is a potential to direct behaviour that is built into the system that controls emotion. This potential may be manifested in cognition emotion and behaviour. There are two different kinds of motivation. Intrinsic motivation and extrinsic motivation. Intrinsic motivation comes from within and is associated with the joy or passion that the task gives the learner rather than any reward it brings. Extrinsic motivation is something to do with external factors associated with the task. Either way, student motivation and engagement are closely related elements of student learning that can have an impact on their learning outcomes.

Muhammad and Ibrahim (2014) observed that the existence of a good motivation in learning will show good results. Motivating students to be enthusiastically receptive is one of the most important aspects of mathematics instruction and a critical aspect of any curriculum.

As regards to the interaction between motivation and students' academic performance Koon (2016) examined the relationship between motivation and academic achievement in elementary-school aged children. He found that for a higher level of mastery, motivation was related to higher mathematics grades. Thus, finding an effective way to motivate student is the key to improve student achievements. Again, in identifying the factors responsible for students' motivation, Koon (2016) posited that students' motivations tend to centre on such performance goals as obtaining favourable judgments of their competence from lecturers, parents, and peers or avoiding negative judgments of their competence. Also, when students' express traces of motivation, their engagements during lesson delivery allow for robust participation for better learning outcomes. Commenting on students' engagements during lessons, Martin, Anderson, Bobis, Way and Vellar (2012) identified the fact that it is not necessarily transition and personal development that causes engagement declines; rather, student, home, classroom, and school factors explain the bulk of such variances.

From the foregoing, the classroom environment seems to be an important motivating factor that makes or mar the teaching and learning process. In this regard, Adesua, Aritole and Musa (2014), said that the learning environment is an important, most powerful and effective instrument of socialization where learners from different socio-economic background come together to learn. They said that classroom can range from small group of five or six to big classroom with hundreds of students with a large classroom. From their submission, it can be said that when considering the factors that make students engage in active learning, educators must give serious attention to the environment and the classroom in particular, where this learning takes place. The number of students in the class as reflected in their sitting arrangements, the suitability of the classroom and school compound must be considered.

Commenting on the importance of the influence of the school environment, Reamen (2015) emphasized that the availability, relevance and adequacy of educational resources items contribute to academic achievement and the unattractive school building, crowded class rooms, non-availability of playing ground and surroundings

that have no aesthetic beauty can contribute to poor academic performance. This implies that the aesthetic beauty in terms of the lightning, painting, an unattractive physical structure of the school building or dilapidated school buildings and other allied resources could serve as a motivator or otherwise as regards learners' academic achievement. It is rather unfortunate that a look at most of our public-school buildings look dilapidated with much to be desired. It will do our school system a lot of good if our government can recognize the impact of the environment and act accordingly. It is interesting to state here that, in the State's bid to ensure quality education, the Chairman, Osun Schools Infrastructure Development Committee, speaking in Osogbo, stated that no fewer than 3,000 dilapidated school buildings out of the 4,000 identified across the 30 local government areas were demolished by the state government (Oyeduntan, 2013). This moves by the government of Osun State shows that they saw a correlation between quality education and the state of the buildings where such education occurs. This is indeed, commendable and it is hoped that other government will take a cue.

On teachers' motivation and its place in mathematics instruction, a study conducted by Zhang (2014) showed that teacher's enthusiasm was an effective predictor of student intrinsic motivation. Emphasizing the place of teachers in promoting the class atmosphere, Abimbola and Abdullahi (2019) opined that if a teacher becomes bored or apathetic, students will be bored too. In addition, Butler (2016) found intrinsic motivation was contagious, as intrinsically motivated teachers either created intrinsically motivated students or were motivated by them. The teacher is therefore a serious key player in determining the level of motivation learners display towards learning. It is therefore necessary that supportive role in classroom instruction is explored to bring about meaningful learning. In line with this, Wang (2014) posited that Supportive relationships from teachers are important in motivating students to learn. Furthermore, for a subject like mathematics where learners hold different negative perceptions, it is imperative that the teacher is adaptive to learners need by bringing in pedagogical approaches that can take care of different learners. This was the thinking of Macmillan and Forsyth (as cited in Abimbola & Abdullahi, 2019) when they stated that, variety reawakens students' motivation and involvements in the subject. They also stressed that, to break the routine by incorporating a variety of teaching methods and activities in the subject e.g. brainstorming, discussion, group work, field trip, will definitely motivate and sustain interest of the learner.

Again, the achievements of students do not always depend on their personality of being determined and consistent in their studies, sometimes, the motivation of parents can enhance the educational achievements of students. Parent motivation include all supportive measures put in place by parents in order to stimulate the effectiveness and efficiency of their children. According to Vallerand and Gillman (2016), parental involvement in their children education is considered to be desirable positively related to their outcomes. Again, Epstein, Van and Pomerantz (2015) emphasized that parents' characteristics including parents' motivational beliefs, affects students' outcome such as skills, knowledge, and self-competence. Moreso, on Parents role on learners' achievement, Mirowsky (2017), revealed a significant effect of Socioeconomic factor on students' achievement. Some researchers concluded that students with high socioeconomic status perform better than those with low socioeconomic status (Atchia & Chinapah, 2019). Motivated individuals possess the following characteristics: They engage in both mental and physical activities holistically, they remain highly focused throughout these activities with clearly defined goals, they are self-critical, they self-reflect on their own actions realistically, and they are usually relaxed and not afraid to fail during learning. Furthermore, Atchia and Chinapah, (2019) found that students coming from disadvantaged socioeconomic and educational homes perform relatively better than those coming from higher socioeconomic and educational strata. An issue of concern here could be an interrogation of attitude indicators of demotivated students. In what areas do they fall short of classroom expectations? Such as attendance of lectures, coping their notes, asking or answering questions, doing their class work etc.

In Nigeria, there are so many factors influencing students' motivation for school work in terms of their ability to cultivate effective and efficient study habit. However, this study focuses itself on whether

the school environment, teacher and parental factors are responsible for poor motivation of students in the teaching and learning of mathematics in Adavi Local Government Area of Kogi State. The study also sought attitude indicators of a poorly motivated students towards mathematics.

Statement of the Problem

The rate at which Nigeria students perform poorly in mathematics is quite alarming. Some of the reasons owing to the facts that students are not motivated in mathematics classroom. When students are not motivated to learn, they tend to skip lessons, may not listen to what is being taught and not copy or update their notes. Some may not perform or carry out their academic task adequately. This study harps on interrogating some identified factors responsible for demotivated students. Of the list of the possible factors, it sought to find out whether worry of this study is to whether school environment, teacher and parental factors are responsible for poor motivation of students in the teaching and learning of mathematics in the study area. It also sought attitude indicators of a poorly motivated students towards mathematics teaching and learning. This study therefore, investigated factors that influence students' motivation in the teaching and learning of mathematics in public secondary schools in Adavi Local Government Area of Kogi State.

Objectives of the Study

The objectives of the study were to:

i. determine the influence of classroom environment on students' motivation in mathematics.
ii. determine the influence of teacher factors on students' motivation.
iii. ascertain the influence of parental status on students' motivation in mathematics.
iv. determine the attitude indicators of poorly motivated students towards mathematics.

Research Questions

The research answered the following questions:

i. How does classroom environment influence students' motivation in mathematics?
ii. What is the influence of teacher factors on students' motivation?
iii. How does parental status influence students' motivation in mathematics?
iv. What are the attitude indicators of poorly motivated students towards mathematics?

Methodology

The study adopted the survey design. The population comprised all students of public schools in Adavi Local Government Area in Kogi State. There are 16 public secondary schools in Adavi Local Government Area. The simple random sampling was used to five eight secondary schools and a sample of 500 students from 1,256 senior secondary school students from the selected schools. The simple random sampling was used to select sub-samples of 100 students from each school. The instrument used for collecting data was a questionnaire titled Factors Influencing Secondary School Students' Motivation in Learning of Mathematics (FISMMQ) which had 30 items clustered on the variables reflected on the four research questions. It was designed on a four (4) point rating scale and scored as follows: Strongly Agree – 4, Agree – 3, Disagree – 2 and Strongly Disagree – 1. The questionnaire was validated by two experts in measurement and evaluation for face and content validity. Its reliability was determined by administering it on subjects outside the study area using the test- retest method. Data generated was analysed using the Pearson Product Moment Correlation Coefficient which yielded 0.71. Copies of the questionnaire were administered to the students in the selected schools with the assistant of the teachers. The data generated were analysed using standard deviation and mean, with a decision rule that, a mean more than or equal to 2.5 was considered an agreement to the items and less than to 2.5 a disagreement.

Results

Table 1: Summary of analysis of responses of students on how classroom environment influence students' motivation in mathematics using mean and standard deviation.

S/N	Statements	Mean	SD	Remark
	Classes with cracked walls	2.40	0.56	Disagreement
	Class roofs that are not well ceiling	2.53	0.56	Agreement
	Not well painted classroom	2.39	0.56	Disagreement
	Insufficient desk	2.76	0.57	Agreement
	Large class size	3.06	0.63	Agreement
	Not well lighted class	2.67	0.57	Agreement
	Poor sitting arrangement	2.71	0.57	Agreement
	Grand Mean	2.65		

From the table, the highest agreement on classroom environment issues that affect students' motivation was large class size with a mean of 3.06, followed by insufficient desk with a mean of 2.76, then not well lighted class with a mean of 2.67 and poor sitting arrangement with a mean of 2.71 and lastly on class roofs that are not well ceiling with a mean of 2.53. They however disagreed that classes with cracked walls with a mean of 2.40 and not well painted classroom with a mean of 2.39can affect motivation. Considering the grand mean of 2.65, the students claimed that classroom environment affects students' motivation in learning mathematics. Again, the standard deviations for each item showed that the students had similar opinions across the items.

Table 2: Summary of Analysis of Students' opinions on the influence of teacher factors on students' motivation.

S/N	Statement	Mean	SD	Remark
	A motivated teacher can always motivate learners in mathematics.	3.69	0.82	Agreement
	When teacher motivate students to learn mathematics, they always perform better.	3.59	0.78	Agreement
	Students taught using adequate method are always motivated.	3.38	0.71	Agreement
	Students taught using instructional materials are always motivated.	3.38	0.71	Agreement
	A teacher that asks questions during lesson motivates the students.	3.28	0.68	Agreement
	Grand mean	**3.46**		

From the table, the highest agreement on the influence of teacher factors on students' motivation was, a motivated teacher can always motivate learners in mathematics with a mean of 3.69, followed by when teacher motivate students to learn mathematics, they always perform better with a mean of 3.59, then students taught using adequate method are always motivated and students taught using instructional materials are always motivated with equal means of 3.38. Lastly, a teacher that ask questions during lesson motivates the students had the least agreement of 3.28. Considering the grand mean of 3.46, the students claimed teachers' factors motivate students in learning mathematics**.** Again, the standard deviations for each item showed that the students had similar opinions across the items.

Table 3: Summary of analysis of students' opinion on how parental factor influence students' motivation in mathematics.

S/N	Statements	Mean	SD	Remark
	Parenting style	3.34	0.70	Agreement
	Parental expectation	3.20	0.66	Agreement
	Income	2.82	0.58	Agreement
	Education	3.32	0.83	Agreement
	Attending school event	3.07	1.01	Agreement
	Interaction with the school teacher	2.98	0.61	Agreement
	Helping in home work	3.27	0.68	Agreement
	Payment of school fees	3.32	0.69	Agreement
	Broken or intact home	2.90	0.60	Agreement
	Grand mean	**3.13**		

From the table, the highest agreement on how parental factor influence students' motivation in mathematics learning was parenting style with a mean of 3.34, followed by parents' education and payment of school fees with equal means of 3.32, then parents helping in home work with a mean of 3.27 and parental expectation with a mean of 3.20 and attending school event with a mean of 3.07. The lower agreements were on parents with interaction with the school with a mean of 3.98followed by students from broken or intact home with a mean of 2.90and a least agreement to parents with income having a mean of 2.82. Considering the grand mean of 3.13, the students claimed that parental factor influence students' motivation in learning mathematics. Again, the standard deviations for each item showed that the students had similar opinions across the items.

Table 4: Summary of analysis of students' opinion on the attitude indicators of poorly motivated students in mathematics.

S/N	Statements	Mean	SD	Remark
	Always coming to school late	3.15	0.65	Agreement
	Always skipping classes	3.96	0.60	Agreement
	Always coming to school unprepared	3.06	0.63	Agreement
	Never do their home work	2.90	0.59	Agreement
	Don't ask question during lesson	2.86	0.59	Agreement
	Grand mean	**3.19**		

From the table, the highest agreement on the attitude indicators of poorly motivated students

in mathematics was students always skipping classes with a mean of 3.96, followed by always coming to school late with a mean of 3.15. Then, students always coming to school unprepared with a mean of 3.06. The lower agreements were students never doing their homework with a mean of 2.90, followed by students not asking questions during lesson with a mean of 2.86. Again, the standard deviations for each item showed that the students had similar opinions across the items.

Discussion

Results in Table 1 revealed that the students claimed that classroom environment affect students' motivation in learning mathematics. This suggests that students need to be motivated by the class room environment for productive learning to take place. It is interesting to know that of the seven variables measured, they agreed that class roofs that are not well ceiled, insufficient desk, large class size, not well lighted class and poor sitting arrangements affects students' motivation to learn mathematics. This agrees with the position of Reamen (2015) who emphasized that the availability, relevance and adequacy of educational resources items contribute to academic achievement and the unattractive school building, crowded class rooms, non-availability of playing ground and surroundings that have no aesthetic beauty can contribute to poor academic performance. Also, Adesua *et al.*, (2014) said that environment is an important, most powerful and effective instrument of socialization where learners from different socio-economic background come together to learn. They further said that classroom can range from small group of five or six to big classroom with hundreds of students with a large classroom. The students however posited that classes with cracked walls and not well painted classroom do not affect their motivation to learn mathematics. They may have seen a not painted class as influencing their motivation to learn because most of them may be living in poorly painted houses in the study area.

Results revealed in Table 2 show that teacher factors influence the motivation of students to learn mathematics. Specifically, the students claimed that an unmotivated teacher cannot motivate student during mathematics lesson delivery. This is in line with the view of Abimbola and Abdullahi (2019) when he opined that, if a teacher becomes bored or apathetic, students will too. They also agreed that when a teacher motivates students to learn mathematics, they always perform better. Again, they agreed that the use of adequate method and instructional material to teach serves as motivation for students' learning which is supported by Abimbola and Abdullahi (2019) when they stated that, variety reawakens students' motivation and involvements in the subject. They also stressed that, to break the routine by incorporating a variety of teaching methods and activities in the subject e.g., brainstorming, discussion, group work, field trip, will definitely motivate and sustain interest of the learner. Lastly, the students claimed that a teacher that ask questions during lesson motivates the students. No doubt, motivating students to be enthusiastically receptive by teachers is one of the most important aspects of mathematics instruction and a critical aspect of any curriculum. It appears that the quality of teaching would likely affect the learning of mathematics. It therefore implies that if we desire to see students who are motivated to learn mathematics, we must ensure that the teachers themselves are motivated and ready to facilitate instruction in the best possible way.

From the result presented in Table 3, the students accepted that parental factors can influence students' motivation to learn mathematics. Thus, the family a child comes from could indicate his/her attitude towards learning mathematics. In line with this, Vallerand and Gillman (2016) stated that parental involvement in their children education is considered to be desirable positively related to their outcomes. The study showed that parenting style was the highest

variable associated with motivation among students. In reality, an authoritative parenting style, which combine high expectations and demand may produce a different learning attitude than a democratic type. The students submitted that the educational background of parents, parents' interaction with teachers, attending school events, payment of school fees, helping in homework and parental expectations play a crucial role in influencing students' motivation towards mathematics. They also agreed that whether broken or intact home, the kind of home also serves as a motivation to students. The results herein call serious attention to the very important role parents play in their children's' education. However, researchers such as Atchia and Chinapah (2019) found that students coming from disadvantaged socioeconomic and educational homes perform relatively better than those coming from higher socioeconomic and educational strata.

The analysis of results in Table 4 showed that the students were in agreement that all the negative attitudes interrogated in the study were indicators of a poorly motivated students. That is, a demotivated student will display a range of negative attitudes towards the learning of mathematics. Specifically, they claimed that a demotivated student will always come late to school, skip classes, come to school unprepared, never do their homework, don't ask or answer questions during lesson, without complete notes, has a negative attitude towards mathematics perform poorly in mathematics. No doubt, motivated individuals possess the following characteristics: They engage in both mental and physical activities holistically, they remain highly focused throughout these activities with clearly defined goals, they are self-critical, they self-reflect on their own actions realistically, and they are usually relaxed and not afraid to fail during learning. This is supported by the assertion of Muhammad and Ibrahim (2014) that, the existence of a good motivation in learning will show good results. Motivating students to be enthusiastically receptive is one of the most important aspects of mathematics instruction and a critical aspect of any curriculum.

Conclusion

The important role mathematics education plays in the modern world underscores why educators and other stakeholders express worry over the poor attention and attitude given to its learning by students. Among the factors identified for this ugly state, this work harps on motivation as a major factor that may define the attitudinal disposition of the mathematics learner. It investigated and established that school environment, the mathematics teacher and students' parents are factors influencing students' motivation in mathematics learning based on the opinions of the students sampled. The work further revealed some attitude indicators of students that are poorly motivated to learn mathematics. It is hoped that if the recommendations made herein to address the three major factors influencing students' motivation above are implemented, we may have created motivated classrooms across our schools for improved learning of mathematics and by implication, a positive attitude towards mathematics learning and commendable performances in the subject.

Recommendations

The following recommendations were made from the study:

i. The relevant government agencies should ensure the provision of good and adequate school facilities in our public schools to serve as motivation for students' mathematics learning.
ii. The government should recruit qualified teachers and ensure that they motivate them so that they can be at their best during lesson delivery to help promote the attitude of pupils for better learning achievement in mathematics.
iii. Principals should encourage Parents during PTA meetings to be more involved in the academic life of their children to help motivate them for better learning attitudes.

References

Abimbola, N. G. A. & Abdullahi, S. M. (2019). Teachers Based Strategies for Motivating the Interest of Students in Mathematics and Entrepreneurship for National Development**.** *Abacus,* 44(1), 501-508.

Adesua, V.O., Aritole A.E. & Musa, J. (2014). Motivation and Academic Performance of Senior Secondary School Students in South West Nigeria. Unpublished Ph. D Thesis. Ekiti State University, Ado-Ekiti.

Atchia, S. M. C., & Chinapah, V. (2019). Factors Affecting the Academic Achievement of Secondary School Students in Mauritius. *Journal of Education and Research, 9*(1), 70-90.

Butler, K. L. (2016). Motivation for Mathematics: The Development and Initial Validation of an Abbreviated instrument. Unpublished Dissertation submitted in partial fulfilment of the requirements for the Degree of Doctor of Philosophy in Mathematics Education Department of Teaching and Learning College of Education University of South Florida.

Epstein, A. Van, V. & Pomerantz, P. (2015). Classroom Discipline and Students Responsibility: The Students' View. *Teaching and Teacher Education*, 17, 307-340.

Kamau, F., Kiprono, G. & Langat, A. M. (2020). Factors Contributing to Poor Performance in Mathematics by Students. A Case Study of Ndemi Secondary Schools in Kipipiri Subcounty, Nyandarua County. Unpublished Research Project Submitted to the School of Education in Partial Fulfilment of the Requirement for the Award of Degree of Bachelor of Education Arts, Gretsa University.

Koon, A. N. W. (2016). Factors Influencing Student's Motivation in Learning Mathematics. *Journal of Education and Social Sciences,* 4, 72-82.

Martin, A. J., Anderson, J., Bobis, J., Way, J., & Vellar, R. (2012). Switching On and Switching Off in Mathematics: An Ecological Study of Future Intent and Disengagement Amongst Middle School Students. *Journal of Educational Psychology,* 104(1), 1-18.

Mirowsky, J. (2017). *Education, Social Status and Health.* New York: Routledge.

Muhammad, S. A. & Ibrahim, M. G. (2014). The Impact of Motivation on Students' Academic Achievement in Kebbi State Junior Secondary School Mathematics. *International Journal of Advance Research,* 2(12), 1-15.

Nyaumwe, L. J.& Mtetwa, D.K. (2013). Developing a Cognitive Theory from Student Teachers' Post-Lesson Reflective Dialogues on Secondary School Mathematics. *South African Journal of Education*, 31, 145 – 159.

Oliweh, I. S. (2020). Factors Influencing Students' Academic Performance in Senior Secondary Schools' Mathematics in Ukwuani L.G.A, Delta State, Nigeria. *Journal of Emerging Technologies and Innovative Research,* 7(11), 955-962.

Oyeduntan, L. (2013). Osun State Demolish 3,000 Dilapidated Schools. Nigeria Newsday. *nigeriannewsday.com>Home>New and Commentary>Education/Technology.*

Reamen, J. I. D. (2015). Motivational Factors That Enhance Students Learning

Achievements. *Journal of Teaching and Education*, 4(2), 323–332.

Vallerand, O. & Gillman A. (2016). Intrinsic and Extrinsic Motivation Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25, 54-67.

Wang, T. R. (2014). Formational Turning Points in the Transition to College: Understanding How Communication Events Shape First-Generation Students' Pedagogical and Interpersonal Relationships with their College Teachers. *Communication Education*, 63, 63-82.

Zhang, Q. (2014). Assessing the Effects of Instructor Enthusiasm on Classroom Engagement, Learning Goal Orientation and Academic Self-efficacy. *Communication Teacher*, 28, 44-56.